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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,712	04/01/2002	Tetsuhiko Takahashi	1141/67087	2762

7590

06/09/2003

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EXAMINER

VARGAS, DIXOMARA

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,712

Applicant(s)

TAKAHASHI ET AL.

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) 2-8 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 9-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

- a. Group I, claim(s) 1 and 9-15, drawn to an MRI apparatus with a correction data means classified in class 324, subclass 318.
- b. Group II, claim(s) 2-6 and 16, drawn to an MRI method comprising phase correction (gradient correction) classified in class 324, subclass 309.
- c. Group III, claim(s) 7 and 8, drawn to an MRI apparatus with means for correcting inhomogeneities in the static magnetic field (magnet correction) classified in class 324, subclass 320.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as correcting the phase error in the gradient field after data acquisition. See MPEP § 806.05(d).
3. Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be

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separately usable. In the instant case, invention III has separate utility such as correcting the inhomogeneities in the static magnetic field prior to the scanning procedure. See MPEP § 806.05(d).

4. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate utility such as correcting the inhomogeneities in the static magnetic field prior to the scanning procedure. See MPEP § 806.05(d).

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group II, restriction for examination purposes as indicated is proper.

8. Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group I, restriction for examination purposes as indicated is proper.

9. During a telephone conversation with Ivan S. Kavrukov on May 27, 2003 a provisional election was made without traverse to prosecute the invention of a magnetic resonance imaging

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apparatus, claims 1, 9-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2-8 and 16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Applicant is reminded that the non-elected claims should be canceled in response to this Office action.

10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

11. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: #123, #124, #113, 192 and #153. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

12. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: #17, #209 and #210. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

13. The drawings are objected to because:

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d. Figures 1 and 6 contain legends or comments describing the figures, however any description of the figures should be in the specification and not in as a legend in the drawings.

e. The specification, on page 8, line 12 discloses a power supply (#409). However, in Figure 4, the # 409 is pointing at a connection between the controller #411 and the gradient system #403. If the power supply is intended to be located in said location, the examiner suggest the applicant to show the power supply with a box numbered as done with the other components.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

14. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1, 9-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Mock (US 6,259,250).

With respect to claims 1, 9 and 15, Mock discloses a MRI apparatus comprising (Figure 1): a magnetic field generating means for producing NMR in the object to be examined (Figure 1, #28 and #36), detecting means for detecting NMR signals emitted from the object (Figure 1, #36 and #42), control means for controlling magnetic field generating means and detecting means (Figure 1, #46), computing means for visualizing morphology or functions of the examined object using the NMR signals detected by the detecting means (Column 4, lines 38-47; Figure 1, #54) and display means for displaying the computed results as images (Figure 1, #62), wherein the control means operates so that a step of acquiring a plurality of NMR signals as image-forming data at one excitation is performed continuously and, during the continuing step, a step of acquiring correction data plural times at a desired interval is performed (Column 6, lines 20-27), and the computing means comprise means for producing a correction data group, which includes temporal variations in the interval, using a plurality of the correction data acquired at a desired interval and means for correcting the image-forming data using correction data from among the correction data group, which correspond to acquisition time of the image-forming data (Abstract).

17. With respect to claim 10, Mock discloses the computing means reverses data arrangement corresponding to the polarity of gradient magnetic field pulses after acquisition of the image-forming data (Column 8, lines 6-7; Figures 2, 4, 7 and 8).

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18. With respect to claim 11, Mock discloses a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means corresponds to one image (Column 3, lines 1-3).

19. With respect to claim 12, Mock discloses a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for an identical slice and 2D images of the slice are display successively on the display means (Column 5, lines 45-54).

20. With respect to claim 13, Mock discloses a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for an different slices and 2D images of the plural slices are display successively on the display means (Column 8, lines 30-33).

21. With respect to claim 14, Mock discloses a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for adjacent slices, and the computing means produces a 3D image using 2D image data and displays the 3D image on the display means (Figure 9).

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses different MRI apparatus and methods that perform a control in the sequence data and correction for the data.

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23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705.


The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.

Dixomara Vargas
Art Unit 2859
May 30, 2003

Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800



EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
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